

## ANNOTATED LIST OF THE FISHES OF NEVADA

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*Abstract.*—160 native and introduced fishes referable to 108 species, 56 genera, and 19 families are recorded for Nevada. The increasing proportion of introduced fishes continues to burden the native ichthyofauna.

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The first list of all fishes known from Nevada by La Rivers and Trelease (1952) eventually culminated in La Rivers' *Fishes and Fisheries of Nevada*, published in 1962. Over the past twenty years, a number of changes have occurred in the fish fauna of the state. These include additions through "official" actions as well as by "unofficial" means. Some taxa have become extinct and many have become much less abundant (Deacon 1979, Deacon *et al.* 1979). Numerous changes have also occurred in our understanding of probable taxonomic relationships of the fishes. The increased number of subspecies recognized since the 1962 list reflects a better understanding of distribution and geographic variation of the ichthyofauna.

Our purpose is to produce a checklist that includes all taxa known from the state within historical times. The list includes all fishes native to Nevada and those that have been introduced into the state, whether or not they have become established. Our checklist reflects current understanding of the fauna and highlights those areas where additional work is needed.

Including subspecies, we record 160 fishes in the present fauna of Nevada referable to 108 species, 56 genera, and 19 families. We recognize 67 subspecies referable to 15 species. The Cyprinidae is by far the most diverse fish family in Nevada and is represented by 39 subspecies, 31 species, and 18 genera.

Introduced fishes (those not native to the state) continue ever-increasingly to contribute to the Nevada fauna. Sixty-three species (58%) have been introduced and 45 (42%) are native. However, if subspecies are included, 69 fishes (43%) have been introduced and 91 (58%) are native. Only six of the 19 fish families are native to the state. La Rivers and Trelease (1952) reported 33 introduced fishes including subspecies and fishes unsuccessfully introduced into Nevada (but excluding the royal silver trout and emerald trout, which were actually introduced rainbow trout), and La Rivers (1962) reported 40. We record the addition of 29 introduced fishes since the 1962 list.

At least seven of the native fishes of Nevada are extinct throughout their range. Another four native fishes appear to have been extirpated from Nevada but are still extant outside the state.

The natural drainage systems of Nevada are divided as follows: Great Basin (including Lahontan, Bonneville and other endorheic drainage basins); Colorado River (including White, Moapa and Virgin rivers, Meadow Valley Wash and Las Vegas Creek); Snake River; and Amargosa River (including Ash Meadows). Forty-six native fishes, including three also found in the Snake River drainage, occur in the Great Basin. Within the Great Basin system the Lahontan drainage, with

12 native fishes, has the most diverse ichthyofauna. Twenty-nine native fishes occur in the Colorado River system, 13 in the Snake River system and six in the Amargosa River system.

In our list, families are ordered phylogenetically, and genera, species and sub-species are listed alphabetically within families. For Cyprinodontiform fishes, we follow the recent classification of Parenti (1981). When available, we follow the scientific and common names recommended by the American Fisheries Society (Robins *et al.* 1980), except *Lepidomeda mollispinis*, for which we prefer the common name Virgin River spinedace. We adopt poolfish as the common name for members of the genus *Empetrichthys*. The use of poolfish seems appropriate following placement of *Empetrichthys* in the Goodeidae (Parenti 1981) and agrees with the common names utilized by La Rivers (1962).

Native and Introduced Fishes of Nevada  
(**BOLDFACE** = native; italic = introduced)

Osteoglossidae—Osteoglossids

1. *Osteoglossum bicirrhosum* (Vandelli). Arawana. Unsuccessfully introduced into Forest Spring in Ash Meadows, Nye County, during an illegal fish farming operation (Soltz and Naiman 1978).

Anguillidae—Freshwater Eels

1. *Anguilla* sp. Eel. An unidentified species was introduced into Lake Mead (Minckley 1973). Individuals are occasionally taken by sport fisherman, most recently on 25 September 1982.

Clupeidae—Herrings and Shads

1. *Alosa sapidissima* (Wilson). American shad. Unsuccessfully introduced into the Colorado River (Miller and Alcorn 1946).
2. *Dorosoma petenense* (Gunther). Threadfin shad. Introduced and abundant in reservoirs of the Colorado River.

Salmonidae—Trout, Salmon and Whitefish

1. *Coregonus clupeaformis* (Mitchill). Lake whitefish. Unsuccessfully introduced into Lake Tahoe (Miller and Alcorn 1946).
2. *Oncorhynchus keta* (Walbaum). Chum salmon. Unsuccessfully introduced into several Lahontan Basin waters (Miller and Alcorn 1946).
3. *Oncorhynchus kisutch* (Walbaum). Coho salmon. Introduced into the Colorado River as a gamefish but stocking has been discontinued.
4. *Oncorhynchus nerka* (Walbaum). Kokanee salmon. Introduced and established in Lake Tahoe (Cordone *et al.* 1971; Fraser and Pollitt 1951; Miller and Alcorn 1946). Also introduced into Wild Horse Reservoir, Elko County, and Lake Mohave.
5. **ONCORHYNCHUS TSHAWYTSCHA** (Walbaum). Chinook salmon. Native to north Pacific coastal waters including certain headwater tributaries of

- the Snake River in northeastern Nevada (Miller and Miller 1948). Extinct in Nevada.
6. **PROSOPIUM WILLIAMSONI** (Girard). Mountain whitefish. Native to Lake Tahoe and certain streams of the Lahontan Basin (La Rivers 1962) as well as tributaries of the Snake River in northeastern Nevada (Miller and Miller 1948).
  7. *Salmo aguabonita* Jordan. Golden trout. Introduced into high-elevation lakes in the Ruby Mountains, Elko County, but no longer found in those waters.
  8. **SALMO CLARKI** Richardson. Cutthroat trout.
    - 8a. *Salmo clarki bouvieri* Bendire. Yellowstone cutthroat trout. Introduced and established in various waters in northern Nevada (Behnke 1979; Miller and Alcorn 1946).
    - 8b. **SALMO CLARKI HENSHAWI** Gill and Jordan. Lahontan cutthroat trout. Native to Pyramid, Tahoe and Walker lakes as well as the Truckee, Walker, Carson and Quinn rivers and their tributaries in the Lahontan Basin, and Summit Lake in Summit Basin. Transplanted into other waters in northern Nevada (La Rivers 1962) and into lakes Mead and Mohave.
    - 8c. **SALMO CLARKI** ssp. Alvord cutthroat trout. An undescribed subspecies endemic to streams in the Alvord Basin of southeastern Oregon and northwestern Nevada (Williams and Bond 1983). Extinct.
    - 8d. **SALMO CLARKI** ssp. Humboldt cutthroat trout. An undescribed subspecies native to headwater tributaries of the Humboldt River in Elko County and headwater tributaries of the Reese River in Nye County (Behnke 1979; Coffin 1981). This subspecies is closely related to *Salmo clarki henshawi* and is considered by some authorities to be synonymous with that subspecies.
    - 8e. *Salmo clarki stomias* Cope. Greenback cutthroat trout. Introduced into the Humboldt River near Elko, Elko County, but never established (Miller and Alcorn 1946).
    - 8f. **SALMO CLARKI UTAH** Suckley. Bonneville cutthroat trout. Native to streams of the Bonneville Basin of eastern Nevada and northwestern Utah (Behnke 1979) and introduced into certain northern Nevada waters (Miller and Alcorn 1946).
  9. *Salmo gairdneri* Richardson. Rainbow trout. Widely introduced and established in Nevada lakes and streams.
  10. *Salmo salar* Linnaeus. Atlantic salmon. Introduced and at one time abundant in Lake Tahoe (Miller and Alcorn 1946), but probably no longer present.
  11. **SALMO** sp. Redband trout. Native to certain basins in southern Oregon and northeastern California as well as certain tributaries of the Snake River, including small streams in northeastern Nevada (Coffin 1975).
  12. *Salmo trutta* Linnaeus. Brown trout. Widely introduced and established in Nevada lakes and streams.
  13. **SALVELINUS CONFLUENTUS** (Suckley). Bull trout. Native in Nevada to tributaries of the Snake River in Elko County (Cavender 1978).
  14. *Salvelinus fontinalis* (Mitchill). Brook trout. Introduced and established in certain streams in northern Nevada.
  15. *Salvelinus namaycush* (Walbaum). Lake trout. Introduced into Truckee Riv-

er, Walker Lake and Lake Tahoe (Miller and Alcorn 1946), but apparently established only in the latter locality.

16. *Thymallus arcticus* (Pallas). Arctic grayling. Introduced into certain high-elevation lakes in northern Nevada (Miller and Alcorn 1946), most recently into Steele Lake, Elko County.

#### Esocidae—Pikes

1. *Esox lucius* Linnaeus. Northern pike. Introduced into certain Nevada waters and established in Comins and Basset lakes, White Pine County and JD Reservoir, Eureka County.

#### Cyprinidae—Carps and Minnows

1. **ACROCHEILUS ALUTACEUS** Agassiz and Pickering. Chiselmouth. A native species of the Columbia River system whose distribution includes Salmon Falls Creek, Elko County (Miller and Miller 1948).
2. *Carassius auratus* (Linnaeus). Goldfish. Widely introduced into Nevada waters but established in relatively few localities.
3. *Ctenopharyngodon idella* (Valenciennes). Grass carp. Introduced but not established in Virginia Lake, Washoe County, and in golf course ponds in Las Vegas, Clark County.
4. *Cyprinus carpio* Linnaeus. Common carp. Widely introduced into Nevada waters and abundant in the Colorado River.
5. **EREMICHTHYS ACROS** Hubbs and Miller. Desert dace. Restricted to thermal springs and their outflows in Soldier Meadows, Humboldt County (Nyquist 1963).
6. **GILA ALVORDENSIS** Hubbs and Miller. Alvord chub. Endemic to the Alvord Basin of northwestern Nevada and southeastern Oregon (Williams and Bond 1983).
7. **GILA ATRARIA** (Girard). Utah chub. Native to streams of the Bonneville Basin of eastern Nevada, and Utah, as well as the upper Snake River of southern Idaho and western Wyoming. Introduced elsewhere in northeastern Nevada (Hubbs *et al.* 1974).
8. **GILA BICOLOR** (Girard). Tui chub.
  - 8a. **GILA BICOLOR EUCHILA** Hubbs and Miller. Fish Creek Springs tui chub. Endemic to Fish Creek Springs and Fish Creek in Eureka County (Hubbs and Miller 1972).
  - 8b. **GILA BICOLOR EURYSOMA** Williams and Bond. Sheldon tui chub. Native to streams in the Guano Basin of northwestern Nevada and southeastern Oregon (Williams and Bond 1981).
  - 8c. **GILA BICOLOR ISOLATA** Hubbs and Miller. Independence Valley tui chub. Endemic to Warm Springs in Independence Valley, Elko County (Hubbs *et al.* 1974). Now extinct.
  - 8d. *Gila bicolor mohavensis* (Snyder). Mohave tui chub. Unsuccessfully introduced into an artificial pool at Paradise Spa south of Las Vegas, Clark County (Hoover and St. Amant 1983).
  - 8e. **GILA BICOLOR NEWARKENSIS** Hubbs and Miller. Newark Valley

- tui chub. Native to springs in Newark Valley, White Pine County (Hubbs *et al.* 1974).
- 8f. **GILA BICOLOR OBESA** (Girard). Lahontan creek tui chub. Native to streams and lakes of the Lahontan and Diamond Basins (Hubbs *et al.* 1974).
- 8g. **GILA BICOLOR PECTINIFER** (Snyder). Lahontan lake tui chub. Native to lacustrine remnants of pluvial Lake Lahontan (Hubbs *et al.* 1974; Snyder 1917).
- 8h. **GILA BICOLOR** ssp. Kate Spring tui chub. An undescribed subspecies endemic to Kate Spring in Railroad Valley, Nye County. The complex of tui chub subspecies in Railroad Basin remains an enigma pending detailed investigations. We follow the field notes of C. L. Hubbs in recognizing six distinct subspecies. This differs from his original published appraisal (Hubbs and Miller 1948a), where he recognized eight subspecies, but is in close agreement with his later work (Hubbs *et al.* 1974).
- 8i. **GILA BICOLOR** ssp. Butterfield Spring tui chub. An undescribed subspecies restricted to Butterfield Spring in Railroad Valley, Nye County.
- 8j. **GILA BICOLOR** ssp. Blue Eagle Spring tui chub. An undescribed subspecies restricted to Blue Eagle Spring in Railroad Valley, Nye County.
- 8k. **GILA BICOLOR** ssp. Bull Creek tui chub. An undescribed subspecies endemic to Bull Creek in northern Railroad Valley, Nye County.
- 8l. **GILA BICOLOR** ssp. Green Springs tui chub. An undescribed subspecies endemic to Green Springs near the northern extent of Railroad Valley, White Pine County.
- 8m. **GILA BICOLOR** ssp. Railroad tui chub. An undescribed subspecies native to Duckwater Creek in Railroad Valley, springs in Little Fish Lake Valley and Twin Springs in Hot Creek Valley (Hubbs *et al.* 1974; Williams and Williams 1981).
- 8n. **GILA BICOLOR** ssp. Big Smoky Valley tui chub. An undescribed subspecies native to the springs along the west side of pluvial Lake Toiyabe in Big Smoky Valley, Nye County (Hubbs and Miller 1948a).
- 8o. **GILA BICOLOR** ssp. Charnock Springs tui chub. An undescribed subspecies endemic to Charnock Springs along the east side of pluvial Lake Toiyabe in Big Smoky Valley, Nye County (Hubbs and Miller 1948a).
- 8p. **GILA BICOLOR** ssp. Dixie Valley tui chub. An undescribed subspecies endemic to springs in Dixie Valley, Churchill County (Hubbs and Miller 1948a).
- 8q. **GILA BICOLOR** ssp. Fish Lake tui chub. An undescribed subspecies endemic to waters of Fish Lake Valley, Esmeralda County (Hubbs and Miller 1948a).
9. **GILA COPEI** (Jordan and Gilbert). Leatherside chub. Apparently native to Goose Creek, Snake River drainage, in Elko County (Hopkirk and Behnke 1966) and introduced into the Colorado River as a baitfish but no longer present (Miller 1952).
10. **GILA CYPHA** Miller. Humpback chub. Native to the Colorado River Basin as far south as just below the present site of Hoover Dam (Miller 1955). Extinct in Nevada.

11. **GILA ELEGANS** Baird and Girard. Bonytail. Native to the Colorado River Basin, but now very rare in Lake Mohave and perhaps extinct in the upper Colorado River.
12. **GILA ROBUSTA** Baird and Girard. Roundtail chub.
  - 12a. **GILA ROBUSTA JORDANI** Tanner. Pahrnagat roundtail chub. Native to the outflows of Crystal, Hiko and Ash springs in Pahrnagat Valley, Lincoln County, but now confined to a small portion of the outflow of Ash Springs (Hardy 1980, 1982; Tanner 1950).
  - 12b. **GILA ROBUSTA ROBUSTA** Baird and Girard. Roundtail chub. Native to the Colorado River Basin, and probably extinct in Nevada.
  - 12c. **GILA ROBUSTA SEMINUDA** Cope and Yarrow. Virgin River roundtail chub. Native to the Virgin River of Utah, Arizona and Nevada (Cross 1978).
  - 12d. **GILA ROBUSTA** ssp. Moapa roundtail chub. An undescribed subspecies confined to the Moapa River in Clark County.
13. **LEPIDOMEDA ALBIVALLIS** Miller and Hubbs. White River spinedace. Endemic to cool springs in the upper White River drainage of White Pine County (Miller and Hubbs 1960). Now very rare following extirpation of Preston Big Spring population because of habitat modification.
14. **LEPIDOMEDA ALTIVELIS** Miller and Hubbs. Pahrnagat spinedace. Native to Ash Springs and Upper Pahrnagat Lake, Lincoln County (Miller and Hubbs 1960). Extinct.
15. **LEPIDOMEDA MOLLISPINIS** Miller and Hubbs. Virgin River spinedace.
  - 15a. **LEPIDOMEDA MOLLISPINIS MOLLISPINIS** Miller and Hubbs. Virgin River spinedace. Native to the Virgin River system of Utah, Arizona and Nevada (Miller and Hubbs 1960; Rinne 1971).
  - 15b. **LEPIDOMEDA MOLLISPINIS PRATENSIS** Miller and Hubbs. Big Spring spinedace. Native to Big Spring and nearby Meadow Valley Wash in Condor Canyon, Lincoln County, but has been extirpated from the former locality.
16. **MOAPA CORIACEA** Hubbs and Miller. Moapa dace. Endemic to the thermal-spring sources and nearby headwaters of the Moapa River, Clark County (Hubbs and Miller 1948b).
17. *Notemigonus crysoleucus* (Mitchell). Golden shiner. Introduced as baitfish into the Colorado River (Miller 1952) and Lake Tahoe. Also introduced and established in the Amargosa River north of Beatty, Nye County.
18. *Notropis lutrensis* (Baird and Girard). Red shiner. Widely introduced into the lower Colorado River system (Hubbs 1954) and now abundant in downstream portions of the Virgin and Moapa rivers (Cross 1975, 1976).
19. *Notropis venustus* (Girard). Blacktail shiner. Introduced into but not established in the downstream portions of the Virgin River (Branson 1968).
20. *Orthodon microlepidotus* (Ayres). Sacramento blackfish. Introduced into the Truckee Meadows area near Reno and possibly still extant in irrigation ditches east of Sparks, Washoe County (La Rivers 1962). Also introduced and established in Lahontan Reservoir, Lyon and Churchill counties.
21. *Pimephales promelas* Rafinesque. Fathead minnow. Introduced into the lower Colorado River and occasionally collected from the Moapa River, Clark County.
22. **PLAGOPTERUS ARGENTISSIMUS** Cope. Woundfin. Native to the Vir-



- gin River of Utah, Arizona and Nevada (Deacon 1979). One individual has been taken from the Moapa River, a pre-impoundment tributary of the Virgin River (Deacon and Bradley 1972).
23. **PTYCHOCEILUS LUCIUS** Girard. Colorado squawfish. Native to the Colorado River Basin, but now extinct in Nevada.
24. **PTYCHOCEILUS OREGONENSIS** (Richardson). Northern squawfish. Native to the Columbia River drainage including the Jarbridge, Bruneau and Owyhee rivers as well as Salmon Falls Creek (Miller and Miller 1948).
25. **RELICTUS SOLITARIUS** Hubbs and Miller. Relict dace. Native to waters in the valleys of pluvial lakes Franklin, Gale, Waring, Steptoe and Spring in northeastern Nevada (Hubbs *et al.* 1974; Vigg 1982).
26. **RHINICHTHYS CATARACTAE** (Valenciennes). Longnose dace. Native to the Columbia River system where it occurs in Goose Creek, Elko County (Hopkirk and Behnke 1966).
27. **RHINICHTHYS OSCULUS** (Girard). Speckled dace.
- 27a. **RHINICHTHYS OSCULUS CARRINGTONI** (Cope). Snake River speckled dace. Native to the Snake River drainage including streams of northeastern Nevada.
- 27b. **RHINICHTHYS OSCULUS LARIVERSI** Lugaski. Big Smoky Valley speckled dace. Native to waters of Big Smoky Valley, Nye County (Hubbs *et al.* 1974; Lugaski 1972).
- 27c. **RHINICHTHYS OSCULUS LETHOPORUS** Hubbs and Miller. Independence Valley speckled dace. Endemic to Warm Springs in Independence Valley, Elko County (Hubbs *et al.* 1974).
- 27d. **RHINICHTHYS OSCULUS MOAPAE** Williams. Moapa River speckled dace. Restricted to the Moapa River, Clark County (Williams 1978).
- 27e. **RHINICHTHYS OSCULUS NEVADENSIS** Gilbert. Ash Meadows speckled dace. Native to Rogers, Longstreet, Fairbanks, Crystal, Forest, Tubbs, Point-of-Rocks, Bradford, Big and Jack Rabbit Springs and their outflow creeks in Ash Meadows, Nye County, but extant only in latter three springs.
- 27f. **RHINICHTHYS OSCULUS OLIGOPORUS** Hubbs and Miller. Clover Valley speckled dace. Native to two springs in Clover Valley, Elko County (Hubbs *et al.* 1974).
- 27g. **RHINICHTHYS OSCULUS RELIQUUS** Hubbs and Miller. Grass Valley speckled dace. Endemic to a single spring-fed creek in Grass Valley, Lander County (Hubbs *et al.* 1974). Extinct.
- 27h. **RHINICHTHYS OSCULUS ROBUSTUS** (Rutter). Lahontan speckled dace. Native to waters of the Lahontan Basin.
- 27i. **RHINICHTHYS OSCULUS** ssp. Preston speckled dace. An undescribed subspecies native to springs in the upper White River drainage, White Pine County.
- 27j. **RHINICHTHYS OSCULUS** ssp. Meadow Valley speckled dace. An undescribed subspecies native to Meadow Valley Wash, Lincoln County.
- 27k. **RHINICHTHYS OSCULUS** ssp. Diamond Valley speckled dace. An undescribed subspecies native to waters of Diamond Valley, Eureka County.

- 27l. **RHINICHTHYS OSCULUS** ssp. Monitor Valley speckled dace. An undescribed subspecies native to waters of Monitor Valley, Nye County.
- 27m. **RHINICHTHYS OSCULUS** ssp. Amargosa River speckled dace. An undescribed subspecies native to the upper Amargosa River drainage near Beatty and Springdale, Nye County.
- 27n. **RHINICHTHYS OSCULUS VELIFER** Gilbert. Pahrnagat speckled dace. Native to spring remnants of the pluvial White River in Pahrnagat Valley, Lincoln County.
- 27o. **RHINICHTHYS OSCULUS YARROWI** (Jordan and Evermann). Colorado River speckled dace. Native to streams of the Colorado River drainage including the Virgin River in Nevada.
28. **RHINICHTHYS** sp. Las Vegas dace. An undescribed species restricted to Las Vegas Creek, Clark County. Extinct.
29. **RICHARDSONIUS BALTEATUS** (Richardson). Redside shiner.
  - 29a. **RICHARDSONIUS BALTEATUS HYDROPHLOX** (Cope). Columbia redside shiner. Native to the middle and upper Columbia River and pluvial Lake Bonneville systems including streams of northeastern Nevada (Miller and Miller 1948).
30. **RICHARDSONIUS EGREGIUS** (Girard). Lahontan redside. Native to rivers, lakes and their tributaries in the Lahontan Basin and introduced into Summit Lake, Humboldt County.
31. *Tinca tinca* (Linnaeus). Tench. Apparently unsuccessfully introduced near Virginia City, Storey County (Miller and Alcorn 1946).

#### Catostomidae— Suckers

1. **CATOSTOMUS ARDENS** Jordan and Gilbert. Utah sucker. Native to streams of the Bonneville Basin of eastern Nevada and northwestern Utah and the upper Snake River of southeastern Idaho and western Wyoming. Introduced into the lower Colorado River, apparently as a baitfish (Miller 1952), where it does not survive.
2. **CATOSTOMUS CLARKI** Baird and Girard. Desert sucker.
  - 2a. **CATOSTOMUS CLARKI INTERMEDIUS** (Tanner). White River desert sucker. Native to remnant waters of the pluvial White River system near Preston and Lund, White Pine County, and Pahrnagat Valley, Lincoln County. Extinct in Pahrnagat Valley and very rare in upper White River Valley except in Lund Town Spring.
  - 2b. **CATOSTOMUS CLARKI** ssp. Meadow Valley desert sucker. An undescribed subspecies from Meadow Valley Wash, Lincoln county.
  - 2c. **CATOSTOMUS CLARKI UTAHENSIS** (Tanner). Virgin River desert sucker. Native to the Virgin River of Utah, Arizona and Nevada (Smith 1966; Tanner 1932, 1936). Also introduced as a baitfish in lower Colorado River (Miller 1952).
3. **CATOSTOMUS COLUMBIANUS** (Eigenmann and Eigenmann). Bridgelip sucker. Native to the Columbia River drainage including tributaries of the Snake River in Elko County (Miller and Miller 1948).
4. **CATOSTOMUS LATIPINNIS** Baird and Girard. Flannelmouth sucker. Native to the Colorado River system, including the Virgin River. Probably now absent in the mainstream Colorado River in Nevada but still common in the Virgin River (Cross 1975).



5. **CATOSTOMUS MACROCHEILUS** Girard. Largescale sucker. Native to the Columbia River drainage including streams tributary to the Snake River, Elko County (Miller and Miller 1948).
6. **CATOSTOMUS PLATYRHYNCHUS** (Cope). Mountain sucker.
  - 6a. **CATOSTOMUS PLATYRHYNCHUS LAHONTAN** (Rutter). Lahontan mountain sucker. Native to streams in the Lahontan Basin.
  - 6b. **CATOSTOMUS PLATYRHYNCHUS PLATYRHYNCHUS** (Cope). Bonneville mountain sucker. Native to streams of the Bonneville Basin of eastern Nevada and northwestern Utah.
7. **CATOSTOMUS** sp. Wall Canyon sucker. An undescribed species endemic to Wall Canyon, Surprise Valley, Washoe County.
8. **CATOSTOMUS TAHOENSIS** Gill and Jordan. Tahoe sucker. Native to lakes, rivers and their tributaries in the Lahontan Basin
9. **CHASMISTES CUJUS** Cope. Cui-ui. Endemic to Pyramid Lake and its principal tributary, the Truckee River.
10. **XYRAUCHEN TEXANUS** (Abbott). Razorback sucker. Native to the Colorado River Basin where it presently is abundant only in Lake Mohave (Minckley 1983).

#### Ictaluridae—Bullhead Catfish

1. *Ictalurus catus* (Linnaeus). White catfish. Introduced and established in Indian Lakes and Stillwater Marsh, Churchill County (La Rivers 1962; Miller and Alcorn 1946), Lahontan Reservoir, Lyon and Churchill counties, and Humboldt River, Lander County.
2. *Ictalurus melas* (Rafinescque). Black bullhead.
  - 2a. *Ictalurus melas catulus* (Girard). Southern black bullhead. Introduced into Las Vegas Creek, Clark County (Miller and Alcorn 1946). Black bullhead, presumably *I. m. catulus*, are also present in the Moapa River (Deacon and Bradley 1972) and Lake Mead (Minckley 1973).
  - 2b. *Ictalurus melas melas* (Rafinesque). Northern black bullhead. Introduced and established in the Carson River and canals near Fallon, Churchill County, Washoe Lake, Washoe County, as well as the lower Walker River and Humboldt River (Miller and Alcorn 1946).
3. *Ictalurus natalis* (Lesueur). Yellow bullhead. Introduced and established in the Colorado River.
4. *Ictalurus nebulosus* (Lesueur). Brown bullhead. Introduced and established in several Nevada waters (Miller and Alcorn 1946), notably Squaw Valley Reservoir, Washoe County.
5. *Ictalurus punctatus* (Rafinesque). Channel catfish. Widely introduced and established in Nevada waters.

#### Clariidae—Labyrinth Catfish

1. *Clarias batrachus* (Linnaeus). Walking catfish. Unsuccessfully introduced into Rogers Spring near Lake Mead, Clark County (Courtenay and Deacon 1983).

#### Loricariidae—Armored Catfish

1. *Hypostomus plecostomus*. Suckermouth catfish. Introduced and established in Indian Springs, Clark County (Courtenay and Deacon 1982).

## Fundulidae—Topminnows

1. *Fundulus zebrinus* Jordan and Gilbert. Plains killifish. Introduced along the Colorado River and seemingly established in certain small streams tributary to Lake Mead.
2. *Lucania parva* (Baird). Rainwater killifish. Introduced into springs and ponds in the Blue Lake area near the Utah border, Elko County.

## Goodeidae—Goodeids

1. *Ameca splendens* Miller and Fitzsimons. Butterfly goodeid. Introduced into Rogers Spring near Lake Mead, Clark County (Courtenay and Deacon 1983).
2. **CRENICHTHYS BAILEYI** (Gilbert). White River springfish.
  - 2a. **CRENICHTHYS BAILEYI ALBIVALLIS** Williams and Wilde. Preston White River springfish. Endemic to spring remnants of the uppermost White River drainage near Preston and Lund, White Pine County (Williams and Wilde 1981).
  - 2b. **CRENICHTHYS BAILEYI BAILEYI** (Gilbert). White River springfish. Restricted to Ash Springs in Pahrnagat Valley, Lincoln County (Gilbert 1893; Hubbs and Miller 1941).
  - 2c. **CRENICHTHYS BAILEYI GRANDIS** Williams and Wilde. Hiko White River springfish. Native to Hiko and Crystal springs in Pahrnagat Valley, Nevada, but now extant in only the latter spring (Williams and Wilde 1981).
  - 2d. **CRENICHTHYS BAILEYI MOAPAE** Williams and Wilde. Moapa White River springfish. Native to headwater springs of the Moapa River, Clark County (Williams and Wilde 1981).
  - 2e. **CRENICHTHYS BAILEYI THERMOPHILUS** Williams and Wilde. Moorman White River springfish. Native to Moorman, Hot Creek and Moon River springs in the pluvial White River drainage, Nye County (Williams and Wilde 1981).
3. **CRENICHTHYS NEVADAE** Hubbs. Railroad Valley springfish. Native to seven thermal springs in Railroad Valley, Nye County. Introduced into Chimney Hot Springs, Nye County, and into springs at Sodaville, Mineral County (Hubbs 1932; Williams and Williams 1981).
4. **EMPETRICHTHYS LATOS** Miller. Pahrump poolfish.
  - 4a. **EMPETRICHTHYS LATOS CONCAVUS** Miller. Raycraft Ranch poolfish. Endemic to a single spring on Raycraft Ranch in Pahrump Valley, Nye County (Miller 1948). Extinct.
  - 4b. **EMPETRICHTHYS LATOS LATOS** Miller. Pahrump poolfish. Endemic to a single spring on Manse Ranch in Pahrump Valley, Nye County (Miller 1948). Now extirpated at Manse Ranch but introduced populations persist at Corn Creek Springs Pond on the Desert National Wildlife Refuge, Clark County, and at Shoshone Ponds, White Pine County.
  - 4c. **EMPETRICHTHYS LATOS PAHRUMP** Miller. Pahrump Ranch poolfish. Endemic to two springs on Pahrump Ranch in Pahrump Valley, Nye County (Miller 1948). Extinct.
5. **EMPETRICHTHYS MERRIAM** Gilbert. Ash Meadows poolfish. Endemic to larger, lower-elevation springs in Ash Meadows, Nye County (Miller 1948). Extinct.

## Cyprinodontidae—Pupfish

1. **CYPRINODON DIABOLIS** Wales. Devils Hole pupfish. Endemic to Devil's Hole in Ash Meadows, Nye County (Baugh and Deacon, 1983a, b; James 1969; Wales 1930). Introduced into artificial refugia in Ash Meadows and along the Colorado River below Hoover Dam, Clark County (Williams 1977).
2. **CYPRINODON NEVADENSIS** Eigenmann and Eigenmann. Amargosa pupfish.
  - 2a. *Cyprinodon nevadensis amargosae* Miller. Amargosa pupfish. Unsuccessfully introduced into a spring on Pahrump Ranch in Pahrump Valley, Nye County (Miller 1968).
  - 2b. **CYPRINODON NEVADENSIS MIONECTES** Miller. Ash Meadows Amargosa pupfish. Endemic to larger, lower-elevation springs in Ash Meadows, Nye County (Miller 1948).
  - 2c. **CYPRINODON NEVADENSIS PECTORALIS** Miller. Warm Springs Amargosa pupfish. Endemic to smaller, mid-elevation springs in Ash Meadows, Nye County (Miller 1948).

## Poeciliidae—Livebearers

1. *Gambusia affinis* (Baird and Girard). Mosquitofish. Widely introduced and established in Nevada waters.
2. *Poecilia latipinna* (Lesueur). Sailfin molly. Introduced and established in Big Jack Rabbit, Point-of-Rocks, Bradford and other springs in Ash Meadows, Nye County, Ash Springs in Lincoln County (Hubbs and Deacon 1964), and in Blue Point and Rogers springs near Lake Mead, Clark County (Deacon *et al.* 1964; Courtenay and Deacon 1982).
3. *Poecilia mexicana* Steindachner. Shortfin molly. Introduced and established in Rogers and Blue Point springs near Lake Mead, Clark County, Hiko, Ash and Crystal springs and their outflows in Pahranaagat Valley, Lincoln County, and in the Moapa River (Cross 1976; Deacon and Bradley 1972; Hubbs and Deacon 1964).
4. *Poecilia reticulata* Peters. Guppy. Introduced into certain Nevada waters and established in Big Warm Spring, Nye County (Williams and Williams 1981), Indian Springs, Clark County (Courtenay and Deacon 1982), Blue Point Spring, Clark County, Lund Town Spring, and Preston Town Spring, White Pine County (Deacon *et al.* 1964), and Thousand Creek Spring and Dufurrena Campground Pond in Humboldt County (Williams 1980).
5. *Xiphophorus helleri* Heckel. Green swordtail. Introduced into Indian Springs, Clark County (Courtenay and Deacon 1982).
6. *Xiphophorus maculatus* (Günther). Southern platyfish. Introduced into Blue Point Springs near Lake Mead and as a hybrid (with *X. helleri*) into Indian Springs, Clark County (Courtenay and Deacon 1982).

## Percichthyidae—Temperate Bass

1. *Morone chrysops* (Rafinesque). White bass. Introduced and established in Lahontan Reservoir and throughout the Truckee-Carson Irrigation District system in Lahontan Valley. Also introduced into Rye Patch Reservoir, Pershing County, and Washoe Lake, Washoe County.

2. *Morone saxatilis* (Walbaum). Striped bass. Introduced and established in Lake Mead, Clark County, and recently found just downstream in Lake Mohave.

#### Centrarchidae—Sunfish

1. *Archoplites interruptus* (Girard). Sacramento perch. Widely introduced into northern Nevada lakes (La Rivers 1962) and established in Pyramid Lake, Washoe County (Vigg and Kucera 1981) as well as in Grass Springs, Steptoe Valley, White Pine County.
2. *Lepomis cyanellus* Rafinesque. Green sunfish. Widely introduced and established in Nevada waters.
3. *Lepomis gibbosus* (Linnaeus). Pumpkinseed. Introduced and established in the Dufurrena Ponds, Humboldt County.
4. *Lepomis macrochirus* Rafinesque. Bluegill. Widely introduced and established in Nevada waters.
5. *Lepomis microlophus* (Gunther). Redear sunfish. Introduced and established in the lower Colorado River (Minckley 1979, 1983).
6. *Micropterus dolomieu* Lacepede. Smallmouth bass. Introduced and established in the Humboldt River (La Rivers 1962).
7. *Micropterus punctulatus* (Rafinesque). Spotted bass. Introduced into Eagle Valley Reservoir, Lincoln County.
8. *Micropterus salmoides* (Lacepede). Largemouth bass.
  - 8a. *Micropterus salmoides floridanus* (Lesueur). Florida largemouth bass. Introduced into reservoirs on the Pahrnagat National Wildlife Refuge and Echo Canyon Reservoir, Lincoln County.
  - 8b. *Micropterus salmoides salmoides* (Lacepede). Largemouth bass. Widely introduced and established in Nevada waters.
9. *Pomoxis annularis* Rafinesque. White crappie. Introduced and established in northern Nevada waters.
10. *Pomoxis nigromaculatus* (Lesueur). Black crappie. Introduced into Nevada waters and abundant in reservoirs of the Colorado River.

#### Percidae—Perch

1. *Perca flavescens* (Mitchill). Yellow perch. Introduced as a gamefish and established in Walker Lake, Mineral County, Rye Patch Reservoir, Pershing County and Lahontan Reservoir, Lyon and Churchill counties.
2. *Stizostedion vitreum* (Mitchill). Walleye.
  - 2a. *Stizostedion vitreum vitreum* (Mitchill). Walleye. Introduced and established as a gamefish into the Colorado River, Rye Patch Reservoir, Pershing County, Chimney Dam Reservoir, Humboldt County, and Lahontan Reservoir, Lyon and Churchill counties.

#### Cichlidae—Cichlids

1. *Cichlasoma cyanoguttatum* (Baird and Girard). Rio Grande cichlid. Introduced into Rogers Spring near Lake Mead, Clark County, but no longer present (Courtenay and Deacon 1983).
2. *Cichlasoma nigrofasciatum* (Günther). Convict cichlid. Introduced and es-

established in Rogers Spring, Clark County, Ash and Crystal springs, Lincoln County (Courtenay and Deacon 1982; Hubbs and Deacon 1964).

3. *Cichlasoma severum* (Heckel). Banded cichlid. Unsuccessfully introduced into Rogers Spring near Lake Mead, Clark County (Courtenay and Deacon 1982; Hubbs and Deacon 1964).
4. *Melanochromis auratus* (Boulenger). Golden mbuna. Introduced but not established in Rogers Spring near Lake Mead, Clark County (W. R. Courtenay, pers. comm.).
5. *Melanochromis johanni* (Eccles). Unnamed mbuna. Introduced but not established in Rogers Spring near Lake Mead, Clark County (W. R. Courtenay, pers. comm.).
6. *Pseudotropheus zebra* (Boulenger). Zebra mbuna. Introduced into Rogers Spring near Lake Mead, Clark County (Courtenay and Deacon 1982, 1983).
7. *Tilapia mariae* (Boulenger). Spotted tilapia. Introduced and abundant in Rogers Spring near Lake Mead, Clark County (Courtenay and Deacon 1982, 1983).
8. *Tilapia zilli* (Gervais). Redbelly tilapia. Introduced but no longer present in ponds in Cottonwood Park, Pahrump Valley, Nye County (Courtenay and Deacon 1982).

#### Cottidae—Sculpins

1. **COTTUS BAIRDI** (Girard). Mottled sculpin.
  - 1a. **COTTUS BAIRDI SEMISCABER** (Cope). Mottled sculpin. Native to the Bonneville Basin of eastern Nevada and northwestern Utah as well as the upper Snake River of southeastern Idaho and western Wyoming.
2. **COTTUS BELDINGI** Eigenmann and Eigenmann. Paiute sculpin. Native to the Lahontan and Bonneville basins as well as the Columbia River drainage (La Rivers 1962).

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